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Asian American Mental Health: The Coronavirus Influence

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Asian American Mental Health: The Coronavirus Influence

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by

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Acknowledgments and Gratitude

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Dedication

       I would like to dedicate this project to my friends, my family, and my Sam. I really could not have done it without your constant support.

       To Dad– thank you for not only believing in me and encouraging me to overcome my hardships, but also for reading my project to see where it could be improved. Thank you for always making yourself available to me whenever I need to ask you for help and for always sending me helpful resources. I am incredibly blessed to have you both as a father and as a mentor. I hope that this final project makes you proud.

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Abstract

The coronavirus, which started its spread in 2019 and was later identified in 2020, led to a devastating pandemic that spread across the planet, impacting millions of people physically, financially, and mentally. Unfortunately, due to its origins in China, Asians, especially ones who live in America, have become victims of various microaggressions, verbal mistreatment, and acts of violence. Due to the increase of racial discrimination and microaggressions against many Asians living across America, the present study focuses on the effect the pandemic has had on the mental health of Asian Americans, as well as the possible buffers against discrimination related anxiety. Literature has shown that not only has the coronavirus been detrimental to the mental health of Americans in general, but the mental health of Asian Americans in particular has especially suffered since the start of the pandemic. In this study, undergraduates from various universities and colleges in America completed an online survey which gave reports on their levels of anxiety during the early stages of the pandemic. They also filled out sections of the survey that asked about their perceived discrimination as well as their ethnic identification. This study focused on two main hypotheses: (a) the level of anxiety for Asian American college students during the early stages of the pandemic (2020 - 2021) would be higher than the anxiety levels of non-Asian American college students, and (b) Asian American college students who have stronger identification to their ethnic roots would display a lower level of anxiety during the early stages of the pandemic as compared to those who have weaker ethnic identification. These predictions were driven by research, which found that although the pandemic has had a particularly strong influence on the mental health of Asian Americans, ethnic identity and a sense of belonging to one's ethnic/racial community has been shown to have an impact on anxiety levels or depressive symptoms. Due to a small sample size, as well as other limitations,

the results for all analyses were deemed non-significant. However, a correlation coefficient conducted to understand the association between ethnic identity levels and anxiety levels for Asian American college students was shown to be positively correlated, which was unexpected from the original hypothesis for this study. Even if the findings were not significant, the outcomes from the data analyses give more reasoning to pursue further and deeper research on this subject.

Introduction

The first coronavirus case originated in Wuhan, China in late 2019 (Centers for Disease Control and Prevention [CDC], 2022), and over the course of just about a year, the coronavirus quickly spread across the continent, influencing the lives of millions around the world. This virus became known as the "Chinese Virus" to many, especially to those who lived in the United States, as even Donald Trump, who was president of the country during the early stages of the pandemic, publicly called the virus the "Chinese Virus" (Chiu, 2020), sparking fear, anger, and many other negative emotions among those who lived in America. Unfortunately, this became the root of discrimination for many Asian Americans. Most of the reported incidents and cases of anti-Asian discriminatory acts were concentrated in diverse metropolitan areas in the United States, which includes New York, California, Boston, and others (Tessler et al., 2020). Many Asian individuals living in America suffered greatly from the pandemic in various ways because of its origins, including loss of profit from privately owned businesses, physical or verbal abuse in public places, and other various forms of microaggressions.

The increased number of cases of racially motivated discriminatory acts against Asians in the United States led to a rise of concern for the well-being of Asian Americans, as well as an increase of research on the pandemic's effect on Asian American mental health. For example, the

Stop AAPI Hate organization was founded in March 2020, which was created with the purpose to track and report incidents of hate and discrimination against Asian Americans and Pacific Islanders in America. This increase in awareness and research of this particular issue is incredibly crucial because research suggests that although coronavirus-related discrimination has generally increased mental disorders for all Americans, Asians Americans specifically have experienced higher levels of mental disorders than white people in the United States since the beginning of the pandemic (Wu et al., 2021). Researchers analyzed data from a nationally representative tracking survey in which caucasian, Asian American, and Asian immigrant participants responded to the survey that included the four-item Patient Health Questionnaire (PHQ-4) and questions on treatment and respect during the past two weeks. The results indicated that Asians in general face a disproportionate amount of negative mental health impact from the pandemic and that the reason behind it is more likely because of the increased experience of discrimination (Wu et al., 2021). This shows how much more the pandemic has affected the mental and emotional well-being of Asians and Asian Americans living in the United States compared to caucasian Americans. This being said, it is even more important to understand the effect of the pandemic specifically on the mental health of Asian Americans, as well as the role of ethnic identity in buffering the effects of racially motivated discrimination on mental health.

Ethnic-Racial Discrimination

In a study centered on ethnic-racial discrimination (ERD) among East and Southeast Asian Americans, researchers compared ERD experiences of Asian Americans before and during the pandemic through conducting a survey, which included the Perceived Ethnic Discrimination Questionnaire-Community Version (PEDQ-CV) to assess direct and indirect discrimination experiences, and the Subtle and Blatant Racism Scale for Asian American College Students

(SABR-A). Researchers also assessed the anxiety and depression of the participants through the Generalized Anxiety Disorder 7-item scale (GAD-7) and the Center for Epidemiologic Studies Depression Scale (CES-D). Through a thorough analysis of the results, the researchers found that reports of ethnic-racial discrimination among East and Southeast Asian Americans have increased during the pandemic compared to before the pandemic (Huynh et al., 2022), which supports the implication that although ethnic-racial discrimination has always existed, ERD has become more frequent and prominent in occurrence because of the pandemic. This also shows that because of the nature and the origin of how the pandemic has come to impact the world, many Asian Americans, especially East and Southeast Asian Americans, have become bigger targets of ERD, which could be incredibly detrimental to their mental health.

Microaggressions

Ethnic-racial discrimination also includes microaggressions, which includes unpleasant verbal or nonverbal communication that is targeted at a person from a certain group because of the group they identify with. An example of microaggression would be alienation of an individual in their own land, such as asking "where are you really from" or saying "your English is very good." Other examples would include color blindness ("I do not see color"), assumption of criminal status, or assignment of intelligence (Sue, 2010), which would be when a person makes an assumption or implication about the intelligence of an individual based on the group they identify with. The harmful influence of microaggressions was examined through a study that focused on East Asian Americans who encountered COVID-19-related microaggressions and how their responses, such as certain coping strategies, affected their stress and well-being. The study involved 345 East Asian American participants who were assessed on the frequency and type of microaggressions they experienced, their stress levels, availability of social support,

their personal resilience, coping strategies, and psychological well-being. The study revealed that anti-Asian microaggressions during the time of COVID-19 were likely to be associated with more stress, as well as poorer psychological well-being (Yan et al., 2022), which further emphasized on the impact racial discrimination and microaggressions would have on an individual, specifically Asian Americans. Even if many of the physical and violent discriminatory acts during the pandemic were targeted towards elderly Asian people living in America, young Asian Americans could also experience racially motivated discrimination through microaggressions, which could change their psychological well-being for the worse. This issue is explored in further detail below.

Mental Health

Aside from the research that has shown how the COVID-19 pandemic has been incredibly but negatively impactful towards the mental health of individuals who lived through the height of the virus, it is important to understand and comprehend the reasons why the pandemic must be taken into account when examining the mental health of various populations. This is due to the fact that the pandemic has changed the life quality of many individuals who have had negative experiences tied to the pandemic. A research study that was published recently was conducted to examine how pandemic-related racial discrimination affected the depression, anxiety levels, and life satisfaction for Asian Americans and Pacific Islanders (AAPI). AAPI participants completed a survey that measured experiences of discrimination, anxiety symptoms, depressive symptoms, and life satisfaction. The produced results indicated that pandemic-related racial discrimination was positively associated with anxiety and depressive symptoms while life satisfaction of AAPI individuals were significantly and negatively affected (Oh & Litam, 2022), indicating that racial discrimination during COVID-19 generally resulted in greater severity of

anxiety and depression as well as lower life satisfaction. This emphasizes the urgency of the research done on racial and ethnic discrimination during the pandemic.

Aside from greater levels of anxiety and depression, research has found that the pandemic has also been damaging to one's self-esteem and coping mechanisms. In a study that aimed to understand how incidents of discrimination during the pandemic influenced the psychological outcomes of Asian Americans, researchers surveyed participants on their discrimination experiences, alcohol use, depressive symptoms, self-esteem, acculturative stress, and few other components that could have been influenced by the pandemic (Liu et al., 2022). The results of the study found that experiencing increased frequency of discrimination related to more depressive symptoms and alcohol use as well as a collective decrease of self-esteem. This means that the pandemic, which has caused an increase of discrimination against Asian Americans, has the potential to negatively impact the self-esteem of Asian Americans as well as instigate unhealthy coping mechanisms, such as alcohol consumption.

In a study centered on East and Southeast Asian American (ESEAA) mental health, 114 Asian American high school students responded to surveys that measured lifetime discrimination, online and offline COVID-19 associated discrimination (CAD), traumatic events, anxiety, and depression. The results indicated that CAD-online and CAD-offline could be significant predictors of anxiety symptoms in ESEAA high school students after controlling for the effects of traumatic events and lifetime discrimination. This means that experiencing discrimination during the pandemic could potentially lead to more anxiety and depression than any other traumatic life event (Ermis-Demirtas et al., 2022). This is important to consider because the emotional strain and negative impacts from the pandemic could be a lot more harmful to the quality of life of many who have experienced any form of discrimination or

microaggression during the height of the pandemic. Additionally, this findings from this study implies that both online and offline coronavirus associated discrimination could be detrimental to ESEAA mental health, which means that we cannot ignore that those who experience discrimination online could also be greatly harmed in terms of their mental health.

Social Support and Resilience

Research indicates that many AAPIs who reported more frequent experiences of racial discrimination after the pandemic showed to have higher levels of anxiety and depression, and therefore, poorer life satisfaction (Oh & Litam, 2022). This is because although racial discrimination may not be directly associated with life satisfaction, experiencing racial discrimination greatly affects mental health (such as experiencing higher levels of anxiety or depression), which in turn has an impact on life satisfaction. The research further indicates that certain factors such as various coping mechanisms that may affect the levels of anxiety and depression could change the way experiencing racial-ethnic discrimination affects life satisfaction for AAPIs.

Although discrimination and microaggressions are very negatively influential to an individual's mental well-being and life satisfaction, there are certain factors that may lighten those effects. For example, a study examined how self-reported racial discrimination toward Asians and Asian Americans during the pandemic affected anxiety, depressive symptoms, physical symptoms, and sleep difficulties (Lee & Waters, 2021). More importantly, this research looked into how social support could serve as a buffer between perceived discrimination and depressive and physical symptoms, such as headaches or choking sensations. In this study, 400 Asians and Asian Americans living in the United States completed various questionnaires and measures that indicated the pandemic's impact on each individual's discriminatory experiences,

social support, mental health, physical health, and sleep health. Although the results revealed that generally speaking, experiencing discrimination as well as anxiety and depressive symptoms was increased for participants after the pandemic, the researchers also found that social support buffered against the negative impact of discrimination on depressive symptoms. Although researchers did not produce significant results that social support buffers against the impact of discrimination on anxiety symptoms or on physical symptoms, the results of this study opens up the possibility of various strategies that could counter the effects of discrimination on mental health.

Other studies have shown that having access to social support is associated with better psychological well-being, which could potentially become an encouragement for individuals to cope with stress when encountered with direct or indirect discrimination (Yan et al., 2022). For example, a study that measured microaggressions, personal resilience, social support, coping strategies, stress, and psychological well-being for Asian Americans revealed that participants who had more access to social support generally displayed better psychological well-being. The researchers explained that this is because those who have access to social support tend to feel more equipped and supported with resources when approached with uncomfortable situations, whereas those who lack social support usually do not feel as strong against adversity due to the lack of those resources.

This can also be supported by another study, in which researchers conducted a cross-sectional study in which they analyzed a convenience sample of 747 early career registered nurses, with the purpose of understanding the relationships between social support (which included support from friends, family members, or coworkers), efficacy, resilience, and mental health (Wang et al., 2018). In this study, the data were collected by a self-administered survey

questionnaire in which the participants were assessed on their general sense of perceived self-efficacy, their perceived social support, and their resilience (specifically as nurses). After an analysis of the data in order to understand if general self-efficacy mediated the relationship between perceived social support and nurse resilience, the findings showed that support from friends and coworkers had positive direct effects on general self-efficacy. Furthermore, the results also supported that general self-efficacy had a positive direct effect on resilience of early career registered nurses, meaning that support from friends and coworkers therefore does positively impact and increase resilience, even if only through the positive impact on self-efficacy.

Why these findings on the impact of social support on resilience are so important is because resilience has been shown to be beneficial for mental health, as researchers explained that resilience is the ability to maintain or regain mental health despite the hardships brought against the individual (Herrman et al., 2011). According to a data search and report made to concretely define resilience, the researchers defined resilience as a relative resistance to environmental risk experiences, or the overcoming of stress or adversity. Therefore, if social support is found to have a positive impact on resilience, and resilience is shown to help an individual maintain or improve their mental health despite encountering adversity, then this means that having more access to social support can potentially also improve or help maintain the mental health of those who are experiencing hardships, such as general life problems or even discrimination and injustice.

The positive mental health outcomes of having social support is well-examined in research, but the negative effects of lacking that support should also be considered. Having access to social support systems is important because the lack of it contributes to loneliness,

which in turn can be detrimental to mental health. In a study that explored the effects of social support on the mental health of pregnant women, researchers recruited 205 pregnant women who completed a questionnaire which included measures that assessed their perceived social support, loneliness, depressive symptoms, perinatal anxiety symptoms, and repetitive negative thinking (RNT) (Harrison et al., 2022). The researchers predicted that lower levels of perceived social support as well as higher levels of loneliness and RNT would be associated with higher depressive and anxiety symptoms. The results supported this prediction, and also showed support that loneliness and RNT would mediate the effect of perceived social support on depression and anxiety. The researchers concluded from these findings that social support can potentially help protect against mental health problems due to a reduction of loneliness and RNT. The findings from this study are incredibly important, as they show that, not only are social support and loneliness associated with one another, but increasing access to social support as well as decreasing loneliness are both supported as methods to improve mental health.

As supported by the literature, social support is an important factor in protecting the mental health for those meeting adversity. This is due to the fact that it increases resilience, which in turn increases self-efficacy, which then positively impacts resilience. Furthermore, having access to social support is associated with a decrease in loneliness, and therefore improves mental health due to a decrease of RNT. Based on the findings of research, having access to social support can truly positively impact mental health due to these numbers of reasons.

Ethnic Identity

Can involvement with one's own ethnic group and culture be considered as a form of social support? In order to determine this, the term "social support" must be properly defined.

Through a conceptual analysis, social support is stated as an umbrella term with certain defining attributes, which includes emotional support, instrumental support, informational support, and appraisal support (Langford et al., 1997). This means that in order for an individual to feel that they have proper access to social support, they have to feel cared for, supported, valued, and even loved by the group(s) or person(s) in their life. A person with proper access to social support should also feel like the support is reliable for concrete assistance, affirmations of their actions, and information useful for problem solving. Importantly, one has to feel that their supportive actions towards their social support group are reciprocated. These attributes are essential for an individual to feel supported, which means that having access to social support can also include involving oneself with one's own ethnic group. If having high levels of social support benefits an individual's psychological well-being regardless of the level of outside threats due to an increase of resilience, and if ethnic or cultural involvement is considered as having access to social support, then theoretically speaking, an individual who is more involved with their ethnic roots and culture would feel less threatened by discrimination as compared to those who are less involved.

Research indicates that having a stronger identification with an ethnic group, which includes having a sense of ethnic pride or committing oneself to the ethnic group in various ways, is associated with better mental health as well as the reduction of stress levels caused by racial-ethnic discrimination. Research has shown that having a higher level of ethnic identification is actually associated with fewer depressive symptoms as well as more protection of mental health. This was supported through a study that was conducted to investigate whether ethnic identity could affect mental health and reduce stress caused by discrimination (Mossakowski, 2003). In this study, 2,109 Filipino American participants took part in a

face-to-face survey in which their ethnic identity, perceived lifetime racial-ethnic discrimination, and depressive symptoms were measured and assessed. The researchers found that ethnic identity specifically reduced the stress induced by ethnic-racial discrimination, and that ethnic identity was a significant stress buffer in the relationship between lifetime racial-ethnic discrimination and depressive symptoms, even if this was not the same case for everyday discrimination that is not necessarily due to race or ethnicity. The findings from this study gives support to the theory that individuals who are more connected and committed to their culture, have more ethnic pride, and often get involved in the ethnic practices of their group, are more prone to protecting their own mental health as well as also more likely to show fewer depressive symptoms when encountered by racial-ethnic discrimination. The findings from this study, in turn, could potentially help Asian Americans find ways to lead better lives even if they are threatened by racial-ethnic discrimination, as their ethnic identity may help them feel more supported when faced with adversaries.

Although research generally supports that having higher levels of ethnic identity may help buffer the effects of racial-ethnic discrimination on mental health and on levels of life satisfaction, there are certain studies that suggest otherwise. One of those studies implies that although ethnic identity is indeed a moderator in the association between racial-ethnic discrimination and anxiety, higher levels of ethnic identity (in contrast to lower levels of ethnic identity) actually causes the effect of racial-ethnic discrimination to be stronger on their own anxiety levels (Huynh et al., 2022). Additionally, how ethnic identity levels are associated with mental health can also depend on various factors. For example, the effects of ethnic identity levels can be based on the culture or race of an individual. In a study that sought to understand how ethnic identity is associated with anxiety and depressive symptoms for African Americans,

researchers found that the measures in which the participants completed indicated that for the African American participants, higher ethnicity was associated with lower anxiety and depression, while for European Americans this was not the case (Williams et al., 2012).

Furthermore, another study that investigated how ethnic identity moderates the psychological burden associated with racial discrimination found that, although high racial/ethnic identity functioned as an exacerbator for Whites, American Indians/Alaska Natives, and Latinxs, moderate racial/ethnic identity functioned as a buffer for Asians and Blacks when approached with racial discrimination (Woo et al., 2019). What is also important to note from this study is that the results indicated that, instead of high racial/ethnic identity levels, the buffering effect of racial/ethnic identity against the burdens racial discrimination was actually observed in those with moderate racial/ethnic identity levels. With these findings in the literature, it seems that although there seems to be an association between ethnic identity and its effect on mental health, certain factors such as the people group based on race/ethnicity could change the dynamic between ethnic identity and mental health. Specifically, the results from this study could imply that Asians in general may be more prone to benefitting from the buffer against racial discrimination brought by ethnic identity levels, but the question that should be explored now, is what level of ethnic identity would be the most helpful in buffering the negative mental health effects from ethnic-racial discrimination.

Other studies suggest that how an individual approaches discrimination could have an effect on their mental health, and that even if ethnic identity does not always play a direct role in lowering depression or anxiety due to discrimination, ethnic identity may indirectly benefit mental health through influencing coping strategies. For example, research indicates that certain coping responses such as forbearance (having self-control or tolerance in a difficult situation) are

positively conditioned by ethnic identity (Noh et al., 1999). This conclusion was drawn from the study of Southeast Asian refugees in Canada who took part in a survey that measured perceived discrimination and coping, depressive symptoms, and ethnic identity levels. The main question that the researchers wanted to investigate was whether coping and ethnic identity levels condition the relationship between racial discrimination and depression. The results revealed that, not only does the strength of ethnic identity not directly affect the level of depression, but it intensifies the association between discrimination and depression, which does not seem to be very beneficial for someone with stronger ethnic identity levels. However, the results also indicated that those with stronger ethnic identification are most benefited from forbearance coping strategies when encountered by discrimination, and therefore diminishes the strength between discrimination and depression. This suggests that perhaps although having a higher level of ethnic identity may not directly affect depression, having a higher level of ethnic identity could potentially become very helpful in countering depression symptoms caused by discrimination only if the individual chooses the right coping mechanism.

Additionally, a study on racial and ethnic socialization (RES) for Filipino American and Korean American youths was conducted to examine how the interaction between racial discrimination and RES affects mental health. Filipino American and Korean American youths were surveyed on their depressive symptoms, their experiences with racial discrimination, and their racial and ethnic socialization. The results indicated that in terms of protection of mental health against discrimination, the promotion of mistrust and ethnic-heritage socialization were protective among U.S.-born Filipino American youth when approached with discrimination, while preparation for bias was protective against discrimination for Korean American youth regardless of nativity and gender (Park et al., 2021). The results of this study further supports the

notion that the impact of racial and ethnic socialization on mental health is different depending on the ethnicity and the approach to ethnic socialization.

As seen through research, the topic of mental health for Asian Americans during the Covid-19 pandemic is incredibly important for a number of reasons. Not only has ethnic-racial discrimination against Asians as a whole increased since the pandemic, but the violence and microaggressions that came with the discrimination has caused an increase of mental health issues for Asian Americans in general. Fortunately, due to the continuing research, literature has also revealed the possible benefits of having a higher level of ethnic identity when engaged in ethnic-racial discrimination. The literature leads to the current study's main focus is to explore this relationship as there are still different stances on the relationship between ethnic identity levels and mental health.

The Current Study

The literature on the topic of Asian American mental health during the pandemic, as well as the effects of experience of discrimination and interactions with one's own ethnicity, are helpful in establishing what is already known and what must be researched even further. Research has not only shown that the spread of the coronavirus has led to an increase in racial-ethnic discrimination against Asians and Asian Americans, but it has also revealed that Asian mental disorders in America as well as a lowered life satisfaction has become a larger issue in light of the pandemic. However, there is hope that social support and ethnic identity could serve as potential buffers between pandemic-related discrimination and Asian American mental health. In this study, I want to further this research in understanding how the pandemic has affected the mental health of Asian American college students specifically, as during the beginning of the pandemic, college students were mandated to leave campus for a period of time,

which caused not only their academics to be disrupted, but their social lives as well. The independence that college students once knew while at school was immediately taken away as soon as the coronavirus forced many campuses to shut down, which could have greatly impacted the mental health of many students. Due to those factors, this study focused on the mental health of college students during the beginning of the pandemic, as well as how their ethnic identity levels served as potential buffers.

The main overall question that is being asked in this study is how the pandemic has affected the anxiety levels of Asian American college students. This question was tested considering various factors, such as the ethnic identification levels of these students. The main objective of this study is to test two main hypotheses: (a) The level of anxiety for Asian American college students during the early stages of the pandemic (2020 - 2021) would be higher than the anxiety of non-Asian American college students, and (b) Asian American college students who have stronger identification to their ethnic roots would display a lower level of anxiety during the pandemic compared to those who have weaker identification to their ethnic roots.

Method

This study was conducted with the purpose of assessing the anxiety levels of Asian Americans and non-Asian Americans during the first part of the pandemic. The ethnic identity levels of participants were also measured and analyzed for a possible buffering effect.

Participants took part in an online survey, in which they were evaluated on their perceived ethnic discrimination experiences, their ethnic identity levels, and their anxiety levels. The main objective in having participants take the survey is to compare the results of anxiety

levels based on the target group (Asian American versus non-Asian American) and based on how participants scored for ethnic identity levels.

A pilot study for each target group was conducted in order to ensure that all functions of the recruiting platform were working properly (such as the payment method for participants who completed their surveys). The pilot study for each target group, which were created and published to recruit 2 participants each, were published and completed on March 9th, 2023. After the successful completion of the pilot study, the official study for each target group (with the remaining 20 participants needed for each group) were published and completed within the 24 hours.

Participants

Participants were recruited through Prolific, in which the survey was posted separately to recruit an even distribution between Asian American participants and non-Asian American participants (44 total participants: 22 Asian American, 22 non-Asian American; 28 Male, 15 Female, 1 Other). South Asian Americans, East Asian Americans, and Southeast Asian Americans were all included for the Asian American target group recruitment. The study was open to students who self-reported their ages as 18 to 23, and were from various universities across the 50 United States. Those interested in participating also had to be a current undergraduate in a college or university, as well as a resident within one of the 50 United States. Participants who completed the survey were compensated for their participation by being paid $4.00 through the recruitment platform Prolific (*See Appendix G*).

Procedure

Although each target group (Asian Americans versus non-Asian Americans) was recruited through different studies on Prolific, all participants were directed to the same survey.

After the recruitment process was complete, participants were first directed to the consent page (the first section of the survey form), in which they read through all of the consent terms (*See Appendix B*). Those who agreed with the terms went on to the survey while those who did not consent to the terms were automatically brought to the submission page so that they did not have to go through the survey questions.

Participants who consented first filled out their basic demographic information, which also included their self-reports of the inclusion criteria. This was to ensure that participants matched the inclusion criteria presented to them when selecting to take part in the survey. After filling out their demographic information, participants went on to complete a section asking about their university or college and state of residence. Participants then filled out a section to measure their perceived discrimination experience, a section to measure ethnic identity levels, and a last section that measured anxiety levels. Perceived discrimination was measured using the media subscale of the Perceived Ethnic Discrimination Questionnaire (PED-Q), ethnic identity levels were measured using the Multigroup Ethnic Identity Measure-Revised (MEIMR), and anxiety levels were measured using the Generalized Anxiety Disorder-7 (GAD-7) (*see Appendix C*). All participants were asked to fill out the survey to its entirety if possible, and they were debriefed at the very end of the survey (*See Appendix D*).

Analytical Approach

In order to test hypothesis (a), a two sample *t*-Test (1 tailed, $\alpha = 0.05$) was conducted in order to compare the anxiety levels of Asian American college students during the first part of the pandemic and the anxiety levels of non-Asian American college students during the first part of the pandemic. In order to test hypothesis (b), a Pearson correlation coefficient ($\alpha = 0.05$) was

conducted in order to examine how ethnic identity levels affected Asian American anxiety levels during the first part of the pandemic.

Aside from the main hypotheses, there were some exploratory hypotheses that were pre-registered and examined (*See Appendix A*). Although the main focus of this study was on the mental health of Asian American college students, I also examined the correlation between ethnic identity levels and anxiety levels for non-Asian American college students. This analysis was conducted the same way as for Asian American college students (Pearson correlation coefficient).

Another exploratory analysis that was pre-registered was conducted to see if Asian Americans had higher levels of perceived ethnic discrimination than non-Asian Americans (PEDQ-CV). A 2 sample *t*-test (1 tailed, $\alpha = 0.05$) was used for this comparison. However, during the analysis, the research hypothesis was that there would be a difference between Asian American perceived ethnic discrimination scores and non-Asian American perceived ethnic discrimination scores, rather than the hypothesis that Asian American perceived ethnic discrimination scores would be higher than non-Asian American perceived ethnic discrimination scores.

Furthermore, in terms of data inclusion and exclusion, the original methodology pre-registered was a listwise exclusion. Originally, the pre-registered plan was that any survey that had missing answers, regardless of any section, would be excluded completely from any of the analyses. However, due to the small sample size, this method was changed into pairwise deletion. Surveys that had missing answers were still included in certain analyses depending on what section(s) contained missing answers.

Results

All 44 participants were recruited, and 44 surveys were returned. However, two surveys were completely excluded due to not meeting the inclusion criteria. These surveys were excluded from analysis because both of the participants entered as Asian Americans through Prolific but filled out the survey itself as "Asian, but not American". In total, 20 completed surveys were included in analysis for Asian American college students, while 22 completed surveys were included for non-Asian American college students.

Anxiety Levels

A 2 sample *t*-Test (1 tailed, α = 0.05) was conducted on the anxiety levels of Asian American college students during the first part of the pandemic compared to the anxiety levels of non-Asian American college students during the first part of the pandemic. The research hypothesis was that the anxiety levels for Asian Americans would be higher than the anxiety levels for non-Asian Americans. The research hypothesis was deemed non-significant (AA: $M = $ 7.70, $SD = 5.52$, Non-AA: $M = 7.64$, $SD = 6.54$, $F(1,40) = 0.766$, $p = 0.487$, $\eta^2 = 0.0105$). (*See Figure 1*)

Figure 1

Plot of the Independent Samples t-Test for the Comparison of Anxiety Levels for Asian American College Students and Non-Asian American College Students
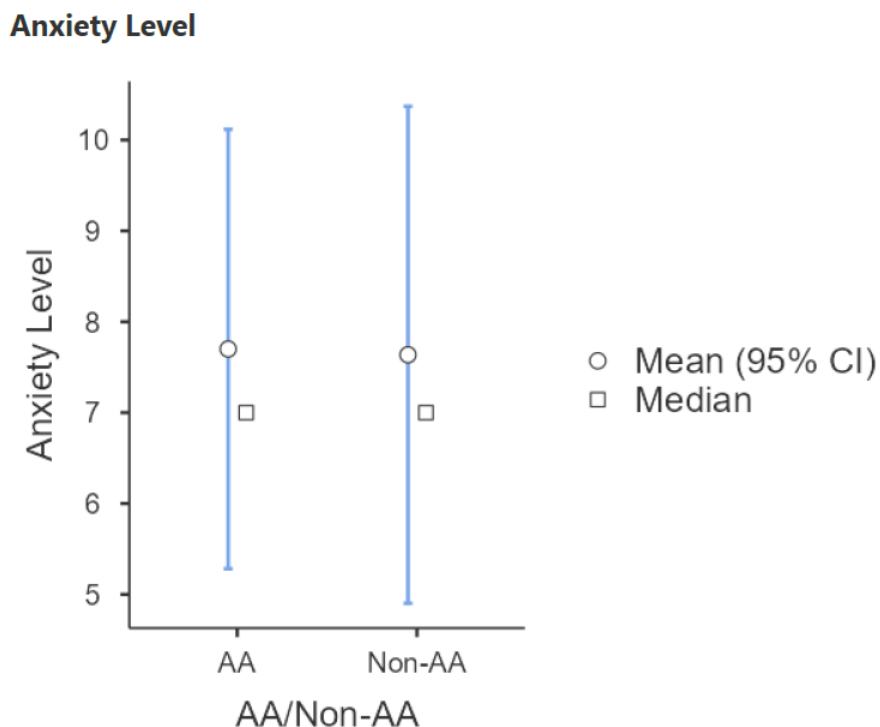
The anxiety levels for Asian American college students was not significantly higher than the anxiety levels for non-Asian American college students. On the contrary, the plot in *Figure 1* shows that the mean of anxiety for non-Asian Americans was only slightly lower than the mean for Asian Americans (AA: $M = 7.70$, Non-AA: $M = 7.64$). Again, there was still no significant difference between the anxiety levels of the two groups.
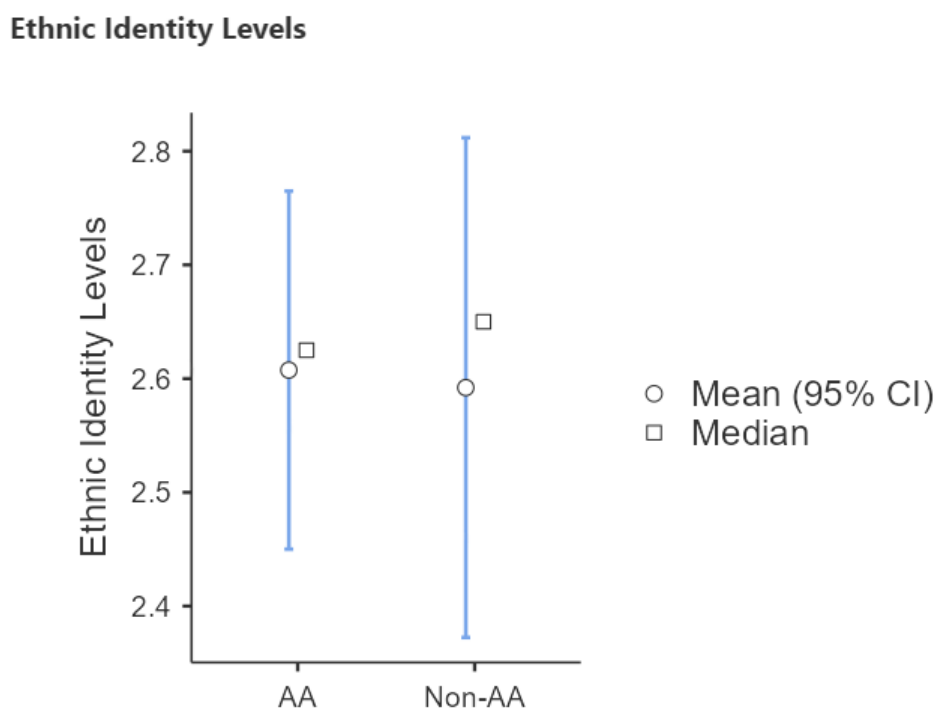
Ethnic Identity and Anxiety

The ethnic identity levels were first compared across both groups with a 2 sample *t*-Test (1 tailed, $\alpha = 0.05$). The findings for this analysis did not support the hypothesis that there would be a difference between ethnic identity levels for Asian American college students and ethnic

identity levels for non-Asian American college students (AA: $M = 2.61$, $SD = 0.359$, Non-AA: $M = 2.59$, $SD = 0.498$, $F(1,37) = 3.53$, $p = 0.911$, $\eta^2 = 0.0360$). (*See Figure 2*)

Figure 2

Plot of the Independent Samples t-Test for the Comparison of Ethnic Identity Levels for Asian American College Students and Non-Asian American College Students

The ethnic identity levels and anxiety levels were then compared for Asian American college students using the Pearson correlation coefficient ($\alpha = 0.05$). *Figure 3* shows the scatterplot for MEIMR and GAD-7 scores for Asian American participants. This correlation analysis was conducted in order to see how the ethnic identity levels for Asian American college students were associated with anxiety levels of Asian American college students during the first part of the pandemic. The main research hypothesis suggests that Asian American college students would be more likely to have less anxiety if they have higher ethnic identity levels.

Although the correlation for ethnic identity levels and anxiety levels for Asian Americans was positive ($r = 0.171$, $n = 20$, $p = 0.235$), r < 0.50, meaning that the correlation between the two variables was not strong. Furthermore and more importantly, although the original research hypothesis predicted that there would be a negative correlation between ethnic identity levels and anxiety levels for Asian American college students, the correlation shows otherwise. The correlation analysis did not produce significant results ($p > 0.05$).

For Non-Asian Americans, the correlation between ethnic identity levels and anxiety levels was also positive ($r = 0.242$, $n = 19$, $p = 0.159$). Interestingly, the slope for this correlation was slightly higher than the correlation for Asian Americans, but the findings from this correlation coefficient was not significant. *Figure 4* shows the scatterplot for MEIMR and GAD-7 scores for Non-Asian American participants.

In *Figure 5*, the scatterplot shows the results for ethnic identity scores and anxiety level scores for both Asian American college students and non-Asian American college students.

Figure 3

Scatterplot for Asian American Ethnic Identity Levels vs Anxiety Levels

Asian American Ethnic Identity Levels vs Anxiety Levels
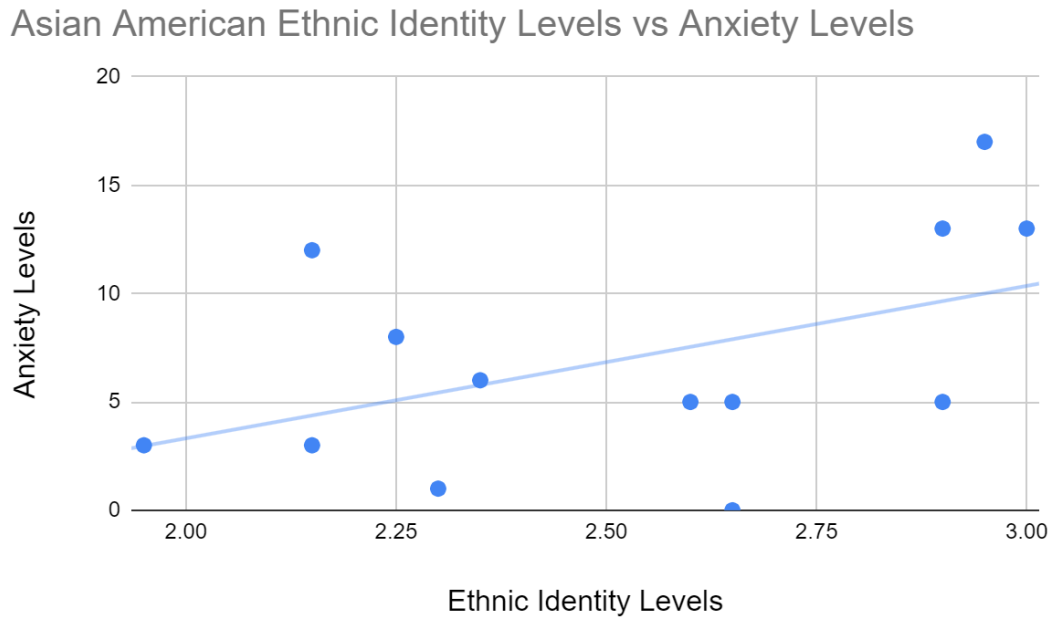
Figure 4

Scatterplot for Non-Asian American Ethnic Identity Levels vs Anxiety Levels

Non-Asian American Ethnic Identity Levels vs Anxiety Levels
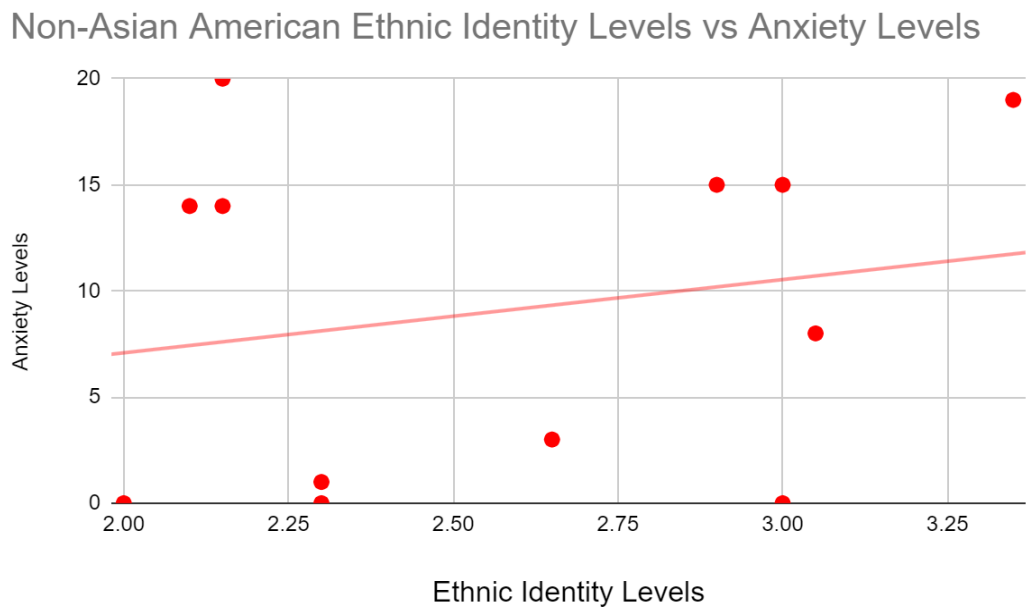
Figure 5

Scatterplot for Ethnic Identity Levels vs Anxiety Levels for Both Groups
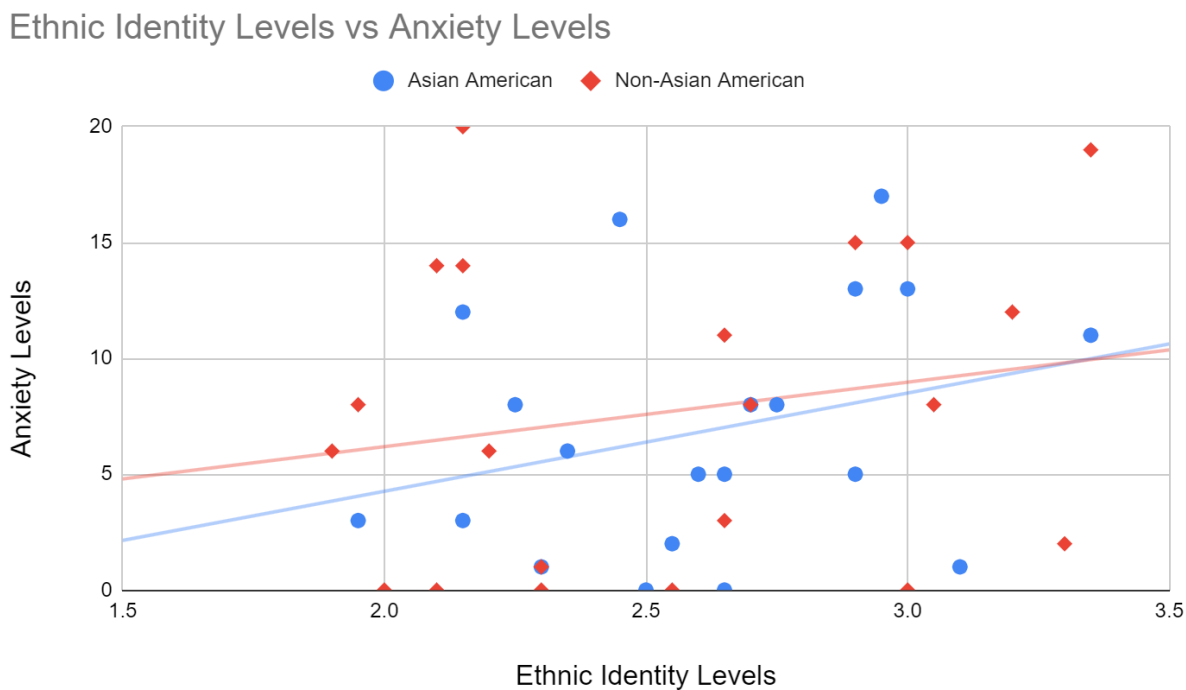
Exploratory Analyses

The Perceived Ethnic Discrimination was measured to compare the levels of perceived ethnic discrimination for both Asian American college students and non-Asian American college students. A 2 sample *t*-Test (1 tailed, $\alpha = 0.05$) was conducted to compare the scores for Asian Americans and non-Asian Americans. The goal of this analysis was to test for a hypothesized difference in the scores for the two groups. The results of this test were not statistically significant (AA: $M = 13.1$, $SD = 5.94$, Non-AA: $M = 12.0$, $SD = 10.0$, $F(1,39) = 1.77$, $p = 0.605$, $\eta^2 = 0.163$). (*See Figure 6*)

Figure 6

Plot for the Independent Samples t-Test for the Comparison of Perceived Ethnic Discrimination for Asian American College Students and Non-Asian American College Students
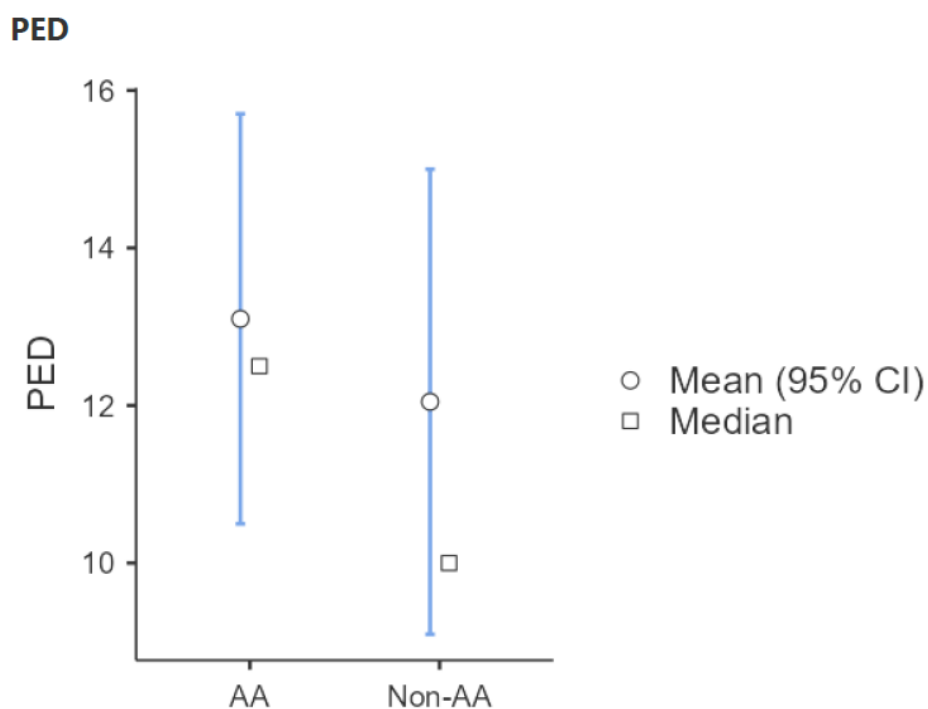
The analyzed data did not find support for the hypothesis that perceived ethnic discrimination (PED) scores for Asian Americans would be different from the perceived ethnic discrimination scores for non-Asian Americans. This was an expected result, as the sample size for both target groups was fairly small (22 for Asian American, 20 for non-Asian American). In *Figure 6*, the PED mean score for Asian Americans was numerically higher than the PED mean score for non-Asian Americans. However, this difference was not significant.

Another exploratory analysis was conducted to implore the possibility that an influential factor to the results could have been the time taken for participants to complete the

survey. Although this was not originally pre-registered, this was explored because it was realized that many participants took less time as expected to complete the survey (*See Appendix A*). Although the survey was designed to take around 20 minutes, many participants completed the survey in less than 10 minutes. This could indicate that those who only took 5 minutes or less to complete this survey might not have been as focused on answering the questions to their best abilities.This being said, this analysis was conducted to understand if the time it took for participants to take the survey affected the results in any way. The same correlation coefficient for ethnic identity levels and anxiety levels was conducted again for each group, but surveys that were completed under 5 minutes were excluded from this analysis.

Compared to the original correlation coefficient conducted to find the association between Asian American ethnic identity levels and Asian American anxiety levels, the second correlation coefficient, which excluded those that took less than 5 minutes to complete, was slightly stronger ($r = 0.543$, $n = 7$, $p = 0.104$). The difference between the first correlation conducted for Asian Americans and the second correlation (which excluded surveys that took less than 5 minutes to complete) changed from $r = 0.171$ to $r = 0.543$. On the other hand, the exclusion of surveys that took less than 5 minutes to complete affected the correlation for non-Asian American college students greatly. For non-Asian Americans, the Pearson's r value increased from 0.242 to 0.692 ($r = 0.692**$, $n = 12$, $p = 0.006$). More importantly, this result was significant ($p < .01$), which implies that for the non-Asian American college students who took 5 minutes or more to complete the survey, a higher ethnic identity level is associated with higher anxiety levels. In *Figure 7*, the trendlines in the scatterplot for the two groups (after excluding the surveys that took less than 5 minutes to complete) is shown to be

slightly more positively sloped than the trendlines from the scatterplot with all surveys included.

Figure 7

Scatterplot for Ethnic Identity Levels vs Anxiety Levels for Both Groups - Completed in 5 or More Minutes
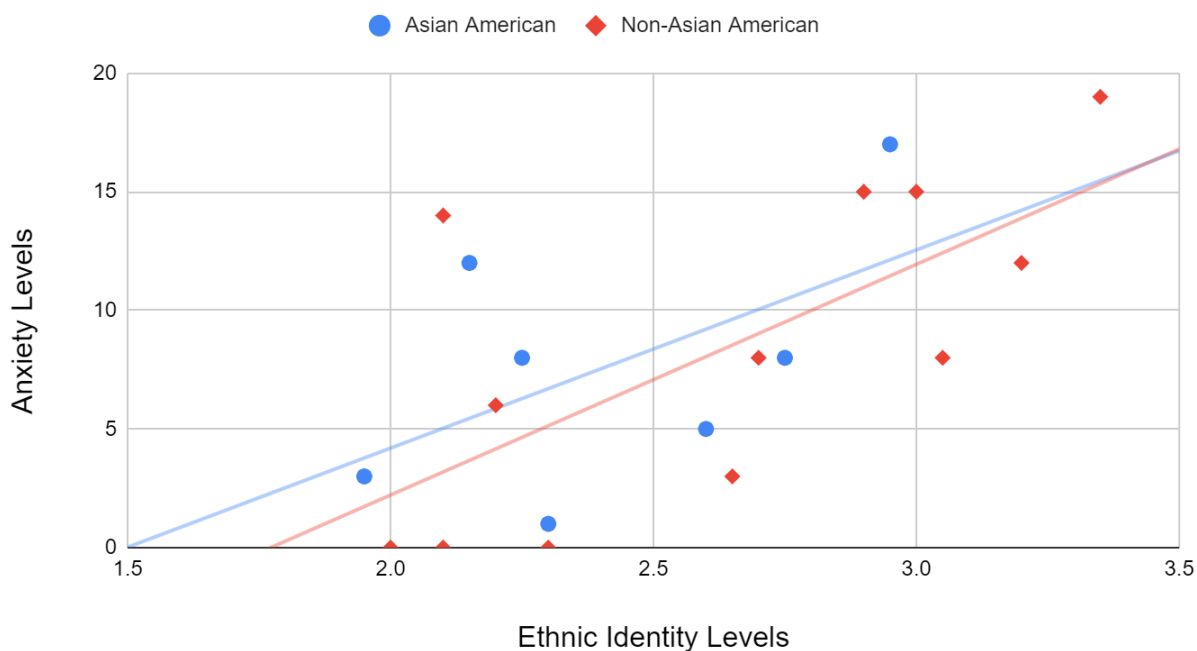
Discussion

The aim of this study was to understand how the early stages of the coronavirus pandemic affected the mental health of Asian American college students. This is due to the fact that the origin of the virus caused an increase in ethnic-racial discrimination against Asians in general in the United States. Furthermore, college students specifically were observed for this study because of how the pandemic has greatly affected not only the academic and work lives of students, but also the social environment for many. The hope of this study was to explore not

only the patterns between the pandemic's affect on the mental health of Asian American college students, but to also find certain factors, such as ethnic identity levels, that could potentially serve as buffers for pandemic-related mental health issues.

The original predictions of this study were that (a) the level of anxiety for Asian American college students during the early stages of the pandemic (2020 - 2021) would be higher than the anxiety levels of non-Asian American college students, and (b) Asian American college students who have stronger identification to their ethnic roots would display a lower level of anxiety during the early stages of the pandemic as compared to those who have weaker ethnic identification. The results from this study were actually unexpected, as none of the analyses supported the original hypotheses. In fact, it can be said that the opposite of what was expected happened, as although this was not a significant finding, it seemed that the mental health of non-Asian American college students were more negatively impacted by Asian American college students. Furthermore, although it was predicted that the ethnic identity levels would have a negative correlation with anxiety levels, the results showed a weak positive correlation for both target groups. There are many reasons why this may be the case, which will be explored below.

Anxiety

The data analysis regarding the anxiety levels of Asian American college students and non-Asian American college students revealed unexpected results. While the original prediction was that Asian American college students would experience more anxiety during the first part of the pandemic, such as what was found in research conducted by Huynh et al. (2022), non-Asian Americans were shown to have a numerically higher mean score for the GAD-7 than Asian

American college students. Although this was not a significant finding, the results of this study could possibly be due to a number of reasons.

The small sample size for both target groups was a huge limitation for this study. For example, although the results indicated that the mean GAD-7 score for non-Asian American college students was a little higher than the score for Asian Americans, the conclusions drawn from the findings are not reliable as there was not a large enough sample size and as there was not an indication of significance during the analysis. Furthermore, the effect size for this analysis was very small ($\eta^2 = 0.0105$), which indicates that the application of these findings are very limited.

A possible reason why Asian American college students did not seem to score higher than non-Asian American college students on the GAD-7 would be that there is a difference in mental health culture for Asian Americans compared to non-Asian Americans. Culturally, Asians individuals have the mentality that they need to suppress their own emotions, so they tend to play down their emotions when asked to express them. For example, in a research conducted by Gross & John (2003), 5 different studies were evaluated in order to test whether individuals differ in their use of emotion regulation strategies such as reappraisal and suppression, and whether these differences have implications for the person's wellbeing and social relationships. Participants in Study 1 took the Emotion Regulation Questionnaire (ERQ), which was designed to measure an individual's tendencies when regulating their emotions. The researchers found that the minority groups that were evaluated in the study (African Americans, Asian Americans, and Latinx) were associated with greater use of suppression to regulate emotions as compared to European Americans, which aligned with their original prediction. This may play a role in why the GAD-7

scores for Asian Americans were not significantly different than the GAD-7 scores for non-Asian Americans.

Ethnic Identity

The findings regarding how ethnic identity for Asian Americans associates with the anxiety levels for Asian Americans were also unexpected from the original prediction. While it was hypothesized that there would be a negative correlation between ethnic identity levels and anxiety levels, as research findings support that ethnic identity could serve as a potential buffer between ethnic-racial discrimination and negative mental health consequences (Mossakowski, 2003), the correlation for both Asian American college students and non-Asian American college students was positive. Although this finding was not significant, this was still a surprising result.

Despite the findings of this study being unexpected from the original hypotheses, the results do align with the findings from the research conducted by Huynh et al. (2022), who also used the MEIMR and GAD-7 to measure ethnic identity and anxiety levels. Although the original prediction for the research by Huynh et al. (2022) was that higher levels of ethnic identity for Asian Americans would weaken the association between ERD and negative mental health consequences, the findings revealed the opposite, as the researchers found that Asian Americans with higher levels of ethnic identity displayed higher levels of anxiety.

One explanation for the results here is that those who are more connected to their ethnic culture may feel more anxiety due to being more aware of the discrimination targeted towards their ethnic group, such as what was suggested by Huynh et al. (2022). Being aware of the discrimination could possibly cause an individual to see the discrimination happen more often, and therefore cause them to have more distress. Furthermore, East and Southeast Asian Americans specifically with higher ethnic identity are perhaps more aware of the implications of

anti-Asian hate, which would cause them to be more anxious. This could be an explanation to why the correlation for ethnic identity levels and anxiety levels was positive for Asian Americans in this study. However, this unfortunately does not explain why the correlation for non-Asian American ethnic identity levels and anxiety levels was also positive, as well as slightly stronger than the correlation for Asian Americans.

Perhaps an explanation to why the positive correlation between ethnic identity levels and anxiety levels for non-Asian American college students was slightly stronger than the positive correlation for Asian American college students, is that many who were recruited for non-Asian American participants identify with other (non-Asian) minority groups who also experienced ethnic-racial discrimination. Although participants were only asked to indicate whether they were Asian-American; Asian, but not American; American, but not Asian; or neither Asian nor American, there is a possibility that many of the non-Asian American participants were from various non-Asian minority groups, as whether the participants were caucasian or not was not accounted for in the study. For future research, the demographics should be more specific as well as carefully altered in order to accommodate this issue.

General Limitations

There were limitations and factors that may have influenced the methods and results of the study. As mentioned before, because the budget for funding the study was very limited, the number of participants recruited was kept to a smaller number. In order to give the study reasonable power, it would have been ideal to have a larger sample size. For reference, a power analysis was conducted in which if the assumed proportion of Asian American participants who were reported with severe or higher anxiety was 0.36, while the assumed proportion of non-Asian American participants who were reported with severe anxiety was 0.26, the minimum

sample size would be 324 participants ($\eta^2 = 0.22$). For a larger proportion difference between the two groups, such as that if the assumed proportion of Asian American participants who were reported with severe anxiety was 0.46, while the assumed proportion of non-Asian American participants who were reported with severe anxiety was 0.26, the minimum sample size would be 90 participants ($\eta^2 = 0.42$). Whether a larger or smaller difference, the sample size for this study would have had to have been at least doubled in order to provide sufficient power.

Aside from providing reasonable power to the study, a smaller sample size also meant that the exclusion of certain data due to the lack of meeting the inclusion criteria could greatly influence the results. For example, the positive correlation between anxiety levels and ethnic identity levels for non-Asian American college students became much stronger after the correlation coefficient was conducted without the surveys that took less than 5 minutes to complete. Therefore, a larger sample size is needed so that stricter exclusion/inclusion criteria could be implemented without largely swaying the results.

Fortunately, due to the nature of the recruiting method (through Prolific), the short amount of time to gather all of the participants and their data was not much of an issue. This is one of the greatest strengths of this platform, despite the risk of recruiting dishonest participants (Palan & Schitter, 2018). Thus, for future research, and if given a larger funding, it would be recommended to take advantage of the convenience of participant recruitment through Prolific or similar platforms by recruiting many more participants.

There was also a specific factor that was not considered for this study, but should be brought to attention for future studies. During this study, South Asian Americans, East Asian Americans, and Southeast Asian Americans were all recruited for the Asian American target group. While this study's main objective was to focus on the mental health of Asian Americans

in general, it would have been beneficial to compare the different types of Asian people groups as there might have been a difference in discrimination experience during the pandemic. For example, in a study that examined the perceptions of racism before and during the COVID-19 pandemic, the researchers surveyed Asians, Latinxs, and Caucasians with the ethnic breakdown for the Asian category being East Asians, South Asians, Southeast Asians, and Filipinxs. Although there was a much smaller sample for South Asian participants as compared to the others in the Asian category, the findings from the study showed that East and Southeast Asians, as compared to the other racial/ethnic groups, experienced the steepest perceived increase in everyday racism (Wong-Padoongpatt et al., 2022). Although the different ethnic groups among the Asian category were not considered for this study, it would be helpful to make a distinction for future research.

Lastly, one of the greatest limitations to this study was the fact that the model for this study was too simple, as ethnic identity was the only independent variable accounted for in order to predict anxiety levels. There could be a number of reasons and potential variables that could have influenced the anxiety levels of the participants in this study, such as family history, work environment, personality, and so on. Furthermore, this study was centered around college students specifically, who have had to still push through everyday student hardships such as academics and social life despite the spread of the pandemic. The model for this study did not account for any other variable other than ethnic identity which could explain why the correlation coefficient for ethnic identity levels and anxiety levels for both groups were weak. In future studies, it is recommended that more independent variables would be used or considered so that there would be a clearer indication of association between anxiety and ethnic identity.

Conclusion

The aim of this study was to see how the beginning of the COVID-19 pandemic affected the mental health of Asian American college students, as compared to non-Asian American college students. The focus of this study was driven by literature, which showed that although the pandemic has impacted people all over the world, certain populations, such as Asian Americans, have suffered greatly mentally as compared to others in the country. Although none of the findings came out as significant, the results from this study should encourage further research on pandemic-related mental health as well as the influence of ethnic identity levels on mental health.

Despite the fact that the results from this study were unexpected, there are various limitations that influenced the findings. Limitations such as small sample size and a loose inclusion criteria should be accounted for and improved in future research on this subject. Although the height of the pandemic has subsided over the past years, the virus is still alive in this world. Therefore, it is essential to continue the research on the pandemic's influence on the populations most susceptible to its harmful mental and physical effects.

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Appendices

Appendix A: Pre-Registration

1) Data collection: Have any data been collected for this study already?

- No, no data have been collected for this study yet.

2) Hypothesis: What's the main question being asked or hypothesis being tested in this study?

- The main overall question that is being asked in this study is how the pandemic has affected the anxiety levels of Asian American college students. This question will be tested considering various factors, such as the ethnic identification levels of these students.

- There are two main hypothesis that would be tested through this study: (a) the level of anxiety for Asian American college students during the early stages of the pandemic (2020 - 2021) would be higher than the anxiety levels of non-Asian American college students, and (b) Asian American college students who have stronger identification to their ethnic roots would display a lower level of anxiety during the early stages of the pandemic as compared to those who have weaker ethnic identification.

- See Other section for follow-up prediction/exploratory analysis

3) Dependent variable: Describe the key dependent variable(s) specifying how they will be measured.

- Anxiety - This variable will be measured through the GAD-7, in which each statement will be answered based on a point system (Not at all - 0 points, Several days - 1 point, More than half the days - 2 points, Nearly every day - 3 points). A total score for each participant will be determined by accumulating the points for every statement.

4) Conditions: How many and which conditions will participants be assigned to?

- Asian American vs non-Asian American (quasi-independent variable) - This condition will be determined by what the participant identifies as in the survey. The survey will have a section in which participants will indicate whether they are Asian American or non-Asian American.

- Perceived Ethnic Discrimination Level (quasi-independent variable) - This condition will be measured by the perceived exposure from the media subscale of the Perceived Ethnic Discrimination Questionnaire- Community Version (PEDQ-CV), in which each item will be ranked by a Likert-type scale from 1 (Never Happened) to 5 (Happened Very Often). The scores will be calculated by averaging the responses of the participants, with a higher score indicating a higher perception of exposure to ethnic discrimination.

- Level of Ethnic Identity (quasi-independent variable) - The ethnic identity level will be determined through the MEIMR (The Multigroup Ethnic Identity Measure-Revised), in which answers for this measure will be based on a point system. Although the MEIMR has point intervals that determine low and high ethnic identity levels, this variable will be measured as a continuous variable in order to be compared with anxiety levels as a correlation analysis.

5) Analyses: Specify exactly which analyzes you will conduct to examine the main question/hypothesis.

- To test hypothesis (a), I will be conducting a 2 sample T-test (1 tailed, $\alpha = 0.05$) to compare the anxiety levels of Asian American college students during the first part of the pandemic and the anxiety levels of non-Asian American college students during the first part of the pandemic. Anxiety levels will be measured through the GAD-7, in which

questions for this measure will be answered based on a point system (Not at all - 0 points, Several days - 1 point, More than half the days - 2 points, or Nearly every day - 3 points). The total score for each participant will be calculated by adding the points for each answer.

- To test hypothesis (b), I will be conducting a Pearson correlation coefficient ($\alpha = 0.05$) to understand how ethnic identity levels affected Asian American anxiety levels during the first part of the pandemic. The ethnic identity level for each participant will be determined through the MEIMR (The Multigroup Ethnic Identity Measure-Revised), in which answers for the statements in the measure will be based on a point system (strongly agree - 4 points, somewhat agree - 3 points, somewhat disagree - 2 points, or strongly disagree - 1 point).

- The measures that I will be using in the survey form (PEDQ-CV, MEIMR, and GAD-7) are answered based on point systems, so I will be able to calculate the total points for each measure of each participant to use for comparison and analysis purposes.

6) Outliers and Exclusions: Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations

- Excluding observations - surveys that are
    - Not completely filled out (listwise exclusion)
    - Does not match survey criteria (university student, age 18-23, residing in one of the 50 United States)

7) Sample Size: How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.

- Sample size: 44 total participants– 22 Asian American, 22 non-Asian American (the survey will be posted separately to get half Asian American participants and half non-Asian American participants, but all participants will take the same questionnaire).

- The total number of participants will be determined by recruiting the most participants on Prolific without going over my budget. I will be compensating participants by paying each participant $4 through Prolific ($12/hr), so I am limited to recruiting a small sample given the fundings that I have.

8) Other: Anything else you would like to pre-register?(e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)

- As an exploratory analysis, I would like to also look at how ethnic identity levels may also impact the anxiety levels of non-Asian Americans with the same correlation analysis (Pearson correlation coefficient, $\alpha = 0.05$) as the analysis for testing hypothesis (b). My prediction is that for non-Asian American participants, they will also be more likely to have less anxiety if they have higher ethnic identity levels, which is the same as my prediction for Asian American participants. However, I would like to look at Asian Americans for my main hypothesis specifically because hypothesis (a) is that Asian Americans will experience more anxiety than non-Asian Americans during the early stages of the pandemic. Because of this, I would like to strictly focus on Asian American for both hypothesis (a) and (b).

- I would like to see how these results compare to the results for Asian Americans by comparing the two correlation coefficients using Fisher's Z-transformation, but I predict that there will not be a significant difference between these two correlation coefficients due to a small sample size for each group.

- As another exploratory analysis, I would also like to compare the anxiety levels of Asian Americans based on their state of residence, and also compare the anxiety levels of all participants in general based on their state of residence. I plan to see if there are any geographic differences based on residence and how those differences could potentially impact the anxiety levels for participants in those areas (e.g., northern states vs southern states).

- As another exploratory analysis, I would like to see if Asian Americans had higher levels of perceived ethnic discrimination than non-Asian Americans (PEDQ-CV). I will be conducting a 2 sample T-test (1 tailed, $\alpha = 0.05$) to compare the perceived ethnic discrimination levels of Asian American college students and the perceived ethnic discrimination levels of non-Asian American college students.

9) Name Give a title for this AsPredicted pre-registration

- Asian American Mental Health: The Coronavirus Influence

10) Type of study.

- Survey

11) Data source

- Prolific

<u>Appendix B: Consent Form</u>

Informed Consent

Principal Investigator: Evangeline Cheng

Psychology Program

Bard College

Project Title

Mental Health: The Coronavirus Influence

Introduction

You are being asked to be a volunteer in an experiment conducted by Evangeline Cheng, senior undergraduate student of the Psychology Program at Bard College. Data collected from this study will be published as part of Evangeline's senior thesis. Please read the following information carefully prior to proceeding to the experiment.

Purpose

The purpose of this experiment is to understand how the early stages of the coronavirus pandemic affected the mental health of individuals in the United States due to ethnic/racial discrimination. Various factors that could potentially alter the impact of ethnic/racial discrimination on mental health will be explored, such as ethnic identity levels and the location of residence within the country.

Study Procedure

If you decide to participate in this study, you will be answering a survey that will have you provide basic demographic information, which would include your age, race and gender. You will answer questions from a series of various sections, depending on your demographic information. Sections of this survey, depending on your demographic information, may include topics such as discrimination, ethnic identity, and anxiety. After completing the survey, you will be debriefed in the final section. This survey is designed to take around 20 minutes.

Risk and Discomforts

Topics such as racial discrimination, ethnic identification, belonging, as well as anxiety levels during the pandemic will appear throughout this survey. Those who do not wish to remember certain situations due to heightened anxiety levels or PTSD should approach this survey with caution. Participants are free to skip any questions that they prefer not to answer, but if you do not feel comfortable with taking this survey, or if at any point during the survey you feel uncomfortable, please feel free to exit this form.

Benefits

This study will not have direct benefits towards the participants. However, this study will have possible indirect benefits to the psychology world, such as contributing to the ongoing research revolving around the impact of the COVID-19 pandemic on mental health. Furthermore, this study will help raise awareness to the racial discrimination and microaggressions many Asian people have had to endure during and after the pandemic.

Compensation

Participants will be paid $4.00 for their participation in the survey.

Exclusion/Inclusion Criteria

All participants must be 18-23 years of age as well as a current undergraduate student in any college/university in the United States. All participants must be a current resident of one of the 50 United States.

Confidentiality

All of the data collected will be from Google Forms. In order to ensure confidentiality, this Google Forms survey does not require the participant to sign into their Google Accounts in order to take the survey. Furthermore, although participants will be asked to indicate their Prolific IDs in the Google Forms, this ID helps distinguish each submission from each other but will not reveal any identifying or sensitive information. Lastly, none of the questions in the survey, aside from the first section (the consent form) and your Prolific ID indication, is required to be answered. Participants can skip questions that they feel uncomfortable with if they choose. Although your personal information will not be disclosed to the public, this final project/study will be permanently and publicly available in the Bard College library and online.

Questions

If you have any questions about your rights as a research participant, you may contact the Principal Investigator, Evangeline Cheng, ec0270@bard.edu, her Senior Project supervisor, Prof. Justin Hulbert (jhulbert@bard.edu), or the chair of the Bard College IRB, irb@bard.edu.

By clicking the box below, you affirm that you have read and understood the context of the consent form.

Appendix C: Measures

Ethnic Discrimination

The perceived exposure from the media subscale of the Perceived Ethnic Discrimination Questionnaire- Community Version (PEDQ-CV; Brondolo et al., 2005) was used to assess how often participants experienced ethnic discrimination through the media. Respondents were asked to indicate how often each situation has happened to them during the first part of the pandemic (2020-2021). For example, one of the questions asks, "have you heard outsiders say bad things about other members of your ethnic group?" Each item was ranked by a Likert-type scale from 1 (Never Happened) to 5 (Happened Very Often). The scores were calculated by averaging the responses of the participants and a higher score meant a higher perception of exposure to ethnic discrimination.

Ethnic Identity

The Multigroup Ethnic Identity Measure-Revised (MEIMR; Brown et al., 2014) was used to assess the ethnic identity levels of participants. Participants were given 20 statements about ethnic identity, ethnic practices, and a sense of belonging, to which respondents answered with *strongly agree, somewhat agree, somewhat disagree,* or *strongly disagree.* An example of one of the items from this measure would be: *I have spent time trying to find out more about my own ethnic group, such as its history, traditions, and customs.* Each answer has a point value (strongly agree - 4, somewhat agree - 3, somewhat disagree - 2, strongly disagree - 1) and the total score is derived from adding the points of all items and then subtracting the negative items (e.g. *During the first part of the pandemic (2020 - 2021), I was not very clear about the role of my ethnicity in my life*). A higher score indicates a higher level of ethnic identity.

Anxiety

All participants also completed the General Anxiety Disorder-7 (GAD-7; Spitzer et al., 2006), which measures the anxiety levels of each participant. Participants were asked to indicate how often they experienced certain problems related to anxiety during the first part of the pandemic (2020 - 2021), such as "not being able to stop or control worrying." Participants answered with *Not at all (o points), Several days (1 point), More than half the days (2 points),* or *Nearly every day (3 points)*. Each answer has a value point and the total score is determined by summing the score for each item. Each score indicated a level of anxiety from the lowest score (0–4: minimal anxiety) to the highest score (15–21: severe anxiety), but anxiety levels were measured as a continuous variable in this study.

Appendix D: Debriefing Statement

Title of Study: Asian American Mental Health: The Coronavirus Influence

In the year 2020, the global pandemic known as the coronavirus skyrocketed in cases in the United States. Due to the origins of the virus, which first appeared in Wuhan, China, racial-ethnic discrimination against Asians in the United States also increased. In fact, according to a report from Spectrum News journalist Rachel Tillman, in 16 of the biggest cities in the country (including New York), hate crimes against Asian Americans jumped 342% from 2020 to 2021. Due to the uprise of racial/ethnic discrimination and microaggressions, especially against Asian individuals, more and more researchers are investigating how the pandemic and the social issues brought with it affects the mental health of Asians and Asian Americans.

During the survey, those who identified as Asian American were asked to fill out information on experiences with discrimination on the media, experiences with ethnic identity, and anxiety levels during the pandemic. It was important to see if there was a difference in anxiety levels during the pandemic between those who identified as Asian American and those who identified as non-Asian American. Furthermore, testing these aspects was important in understanding how racial-ethnic discrimination during the pandemic impacted anxiety levels, and how ethnic identity levels could have potentially played a role in moderating these two factors. The residency location and university was also considered as there was a chance that Asian Americans who lived or studied in large metropolitan areas could have received more impact on their anxiety levels during the pandemic. This study is another step in understanding the true effects of the COVID-19 pandemic on Asian American mental health. It is hopeful that

researchers can continue to find ways to assist Asian Americans with protecting their mental health when encountering racial-ethnic discrimination.

If you are in need of a support group, feeling anxious or depressed, or in crisis, please call or text 988 for mental health or life-saving services. You can also chat at https://988lifeline.org/.

Thank you for your time and effort to participate in this survey. If you have any questions please reach out to Evangeline Cheng (ec0270@bard.edu) or her Senior Project supervisor, Prof. Justin Hulbert (jhulbert@bard.edu). If you have any questions or concerns regarding your rights as a research participant in this study, you may contact the Institutional Review Board (IRB) at irb@bard.edu.

Appendix E: IRB Proposal Form

Link: https://www.bard.edu/irb/proposal/

Part 1

1.1 Today's date: 2/23/2023

1.2 Name: Evangeline Cheng

1.3 Email: ec0270@bard.edu

1.4 Your Academic Program/Department/Office: Psychology

1.5 Your status (faculty, staff, graduate or undergraduate student): undergraduate student

1.6 Adviser or Faculty Sponsor (if applicable): Justin Hulbert

1.7 If you are a graduate or undergraduate student, has your Adviser or Faculty Sponsor seen and approved your application?: Yes

1.8 Your Adviser's or Faculty Sponsor's email address (if applicable): jhulbert@bard.edu

1.9 Please list all individuals (full name and status, i.e. faculty, staff, student) involved in this project that will be working with human subjects. Note: Everyone listed must have completed Human Subject Research Training within the past three years. Evangeline Cheng

1.10 Do you have external funding for this research?: No

1.11 If so, state the name of the sponsor and the title of the project as it was submitted to that sponsor: N/A

Part 2

2.1 What is the title of your project?: Asian American Mental Health: The Coronavirus Influence

2.2 When do you plan to begin this project? (Start date): March 5, 2023

2.3 Describe your research project: For my research project, I plan on conducting a survey inspired by Huynh et al. (2022), in which I will be collecting information on ethnic identification, perceived discrimination, and anxiety levels. This project is important to me because I want to know whether ethnic identification levels could be used as a buffer against anxiety influenced by racial/ethnic discrimination. Although some research supports that higher levels of ethnic identification levels are generally associated with better mental health, other studies find that having higher levels of ethnic identity may actually have a negative effect on mental health, such as raising levels of anxiety. I would like to conduct a survey that is structured similarly to that of Huynh et al., whose research found that higher levels of ethnic identity may be associated with worse mental health. In the research done by Huynh et al., perceived discrimination was measured to understand the levels of experience participants have with discrimination. Using that information, Huynh et al. measured ethnic identity levels, anxiety levels, and discrimination levels in order to understand their associations to experiencing discrimination.

For my research, I plan to shorten my survey and to only use certain parts of the measures Huynh et al. used. This is due to the short amount of time we have to collect data, as well as because I plan on focusing more on discrimination through the media, ethnic identity, and levels of anxiety. The survey will be conducted through Google forms and will be using measures such as the perceived exposure from the media subscale of the Perceived Ethnic Discrimination Questionnaire, the Multigroup Ethnic Identity Measure-Revised, and the GAD-7.

For my study, I want to know if anxiety levels differed significantly between Asian Americans and non-Asian Americans during the pandemic, as well as if ethnic identification levels affected anxiety levels for Asian Americans. Specifically, I will be comparing Asian Americans versus non-Asian Americans, and Asian Amercians with stronger ethnic identification levels versus Asian Americans with weaker ethnic identification levels.

2.4 Describe the population(s) you plan to recruit and how you plan to recruit participants. Please submit all recruitment material, emails and scripts to IRB@bard.edu: I plan to recruit undergraduate students who are 18-23 years old and who live in one of the 50 United States. They must be current college students. I will reach participants through Prolific and will be posting the study separately for Asian American participants and non-Asian American participants (in an attempt to gain a roughly balanced representation of my 2 target groups). However, the two groups will be filling out the same underlying questionnaire.

2.5 Will your participants include individuals from vulnerable or protected populations (e.g., children, pregnant women, prisoners, or the cognitively impaired)? No

2.6 If your participants will include individuals from the above populations, please specify the population(s) and describe any special precautions you will use to recruit and consent: N/A

2.7 Approximately how many individuals do you expect to participate in your study?: 44

2.8 Describe the procedures you will be using to conduct your research. Include descriptions of what tasks your participants will be asked to do, and about how much time will be expected of each individual. NOTE: If you have supporting materials (printed surveys, questionnaires, interview questions, etc.), email these documents separately as attachments to IRB@bard.edu. Name your attachments with your last name and a brief

description (e.g., "WatsonSurvey.doc"): Recruits will get to the survey (on Google Forms) through Prolific. The participant will first give consent in the first section by clicking on the "I consent to these terms and choose to continue" button on the first section, and then they will go through the other sections of the survey. Participants will state whether they are Asian American or not and fill in other demographic information. They will then fill out a section that measures the perceived racial-ethnic discrimination, a section that measures ethnic identity levels, and a section that measures anxiety levels. They will then be debriefed briefly at the end of the survey. This survey is designed to take around 20 minutes.

2.9 Describe any risks and/or benefits your research may have for your participants: There are no expected direct benefits to participating in this survey. However, the survey asks participants to reflect on their experiences during the pandemic, as well as instances of perceived discrimination and their anxieties more generally over this time period. Not only are many of these experiences expected to have been quite challenging to live through in the moment, reflecting on them may risk causing additional upset in individuals.

2.10 Describe how you plan to mitigate (if possible) any risks the participants may encounter: The consent form lays out the general nature of the questions asked in the survey, allowing individuals who are uncomfortable with such topics to opt out of participating. None of the questions are required to be answered, which eases the pressure on participants who do not want to answer uncomfortable questions. Furthermore, although various measures will be used in the survey, the results from the measures (perceived discrimination levels, ethnic identity levels, and anxiety levels) will not be revealed to participants.

2.11 Describe the consent process (i.e., how you will explain the consent form and the consent process to your participants): When recruits first land on the Google Form website,

they will be presented with an online consent form in the first section. After reading through the

consent form, they will be asked to click a button indicating that they consent, should they agree

to the statements and wish to continue. If they respond that they do not consent, they will be

brought directly to the submission page and will not have to go through the survey.

2.12 Have you prepared a consent form(s) and emailed it as an attachment to

IRB@bard.edu? Yes

Note: You must submit all necessary consent forms before your proposal is considered

complete.

2.13 If you are collecting data via media capture (video, audio, photos), have you included a

section requesting consent for this procedure(s) in your consent form(s)?: N/A

2.14 If your project will require you to employ a verbal consent process (no written consent

forms), please describe why this process is necessary and how verbal consent will be

obtained and stored: N/A

2.15 What procedures will you use to ensure that the information your participants provide

will remain confidential and safeguarded against improper access or dissemination?

The Google Forms through which I plan to collect data do not automatically collect email

addresses of respondents or require that they sign in to a Google account. Participants may skip

questions that they do not wish to answer and are free to end their participation at any time, as

they'll be reminded in the informed consent. Furthermore, although participants will be asked to

indicate their Prolific IDs in the Google Forms, this ID helps distinguish each submission from

each other but will not reveal any identifying or sensitive information.

2.16 Will it be necessary to use deception with your participants at any time during this

research? Withholding details about the specifics of one's hypothesis does not constitute

deception, this is called incomplete disclosure. Deception involves purposefully misleading participants about the nature of the research question or about the nature of the task they will be completing. No

2.17 If your project study includes deception, please describe here the process you will use, why the deception is necessary, and a full description of your debriefing procedures. N/A

2.18 For all projects, please include your debriefing statement. (This is information you provide to the participant at the end of your study to explain your research question more fully than you may have been able to do at the beginning of the study.) All studies must include a debriefing statement. Be sure to give participants the opportunity to ask any additional questions they may have about the study.

Thank you for filling out this survey. Please read below for the debriefing statement.

Title of Study: Asian American Mental Health: The Coronavirus Influence

In the year 2020, the global pandemic known as the coronavirus skyrocketed in cases in the United States. Due to the origins of the virus, which first appeared in Wuhan, China, racial-ethnic discrimination against Asians in the United States also increased. In fact, according to a report from Spectrum News journalist Rachel Tillman, in 16 of the biggest cities in the country (including New York), hate crimes against Asian Americans jumped 342% from 2020 to 2021. Due to the uprise of racial/ethnic discrimination and microaggressions, especially against Asian individuals, more and more researchers are investigating how the pandemic and the social issues brought with it affects the mental health of Asians and Asian Americans.

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research participant in this study, you may contact the Institutional Review Board (IRB) at

irb@bard.edu.

2.19 If you will be conducting interviews in a language other than English, will you conduct all of the interviews yourself, or will you have the assistance of a translator? If you will be using the assistance of a translator, that individual must also certify that he or she is familiar with the human subject protocol and has completed the online training course. N/A

2.20 If your recruitment materials or consent forms will be presented in languages other than English, please translate these documents and email copies to IRB@bard.edu. I have submitted all of my translated materials. N/A

Appendix F: IRB Approval

Bard College Institutional Review Board

Date: 3/6/2023

To: Evangeline Cheng

Cc: Justin Hulbert; Nazir Nazari

From: Ziad M. Abu-Rish, IRB Chair

Re: Asian American Mental Health: The Coronavirus Influence

DECISION: APPROVAL

Dear Evangeline Cheng:

The Bard IRB committee has reviewed and approved your proposed amendments of 2/20/2023

to the protocol 2022DEC14-CHE.

Please notify the IRB if your methodology changes or unexpected events arise. We wish you the

best of luck with your research.

Ziad M. Abu-Rish, Ph.D.

IRB Chair

Associate Professor of Human Rights and Middle Eastern Studies

Bard College (zaburish@bard.edu)

Email: irb@bard.edu | Website: ht

Appendix G: Project Budget

Prolific Participant Payment Costs: $4 per participant ($12/hr) + Prolific service fee

Prolific Senior Project Participant Payments: Asian American Pilot Study - $10.66

Prolific Senior Project Participant Payments: Non-Asian American Pilot Study - $10.67

Prolific Senior Project Participant Payments: Asian American Study - $106.67

Prolific Senior Project Participant Payments Non-Asian American Study - $106.66

Total Paid - $234.66